

Claims

We Claim:

1. A method for producing an improved copolymerized product comprising:  
melt blending together to give a melt blend:  
at least one relatively low MFI HIPS resin; and  
at least one relatively high MFI polystyrene homopolymer; and  
extruding a product from the melt blend.
2. The method of claim 1 where the HIPS resin has a MFI ranging from about 1.5 to about 15, and the polystyrene homopolymer has a MFI ranging from about 20 to about 40.
3. The method of claim 1 where the weight ratio of HIPS resin to polystyrene homopolymer ranges from about 90/10 to about 50/50.
4. The method of claim 1 where the product has improved melt stability as compared with a product made from the relatively low MFI HIPS resin without the relatively high MFI polystyrene homopolymer.
5. The method of claim 1 where the product is extruded at a shear rate from about 1,000 to about 15,000 s<sup>-1</sup>.
6. A method for producing an improved copolymerized product comprising:  
melt blending together to give a melt blend:  
at least one HIPS resin having a MFI ranging from about 1.5 to about 15; and  
at least polystyrene homopolymer having a MFI ranging from about 20 to about 40;

where the weight ratio of HIPS resin to polystyrene homopolymer ranges from about 90/10 to about 50/50 and extruding a product from the melt blend.

7. The method of claim 6 where the product has improved melt stability as compared with a product made from the relatively low MFI HIPS resin without the relatively high MFI polystyrene homopolymer.
8. A styrenic resin blend comprising at least one relatively low MFI HIPS resin and at least one relatively high MFI polystyrene homopolymer.
9. The styrenic resin blend of claim 8 where the HIPS resin has a MFI ranging from about 1.5 to about 15, and the polystyrene homopolymer has a MFI ranging from about 20 to about 40.
10. The styrenic resin blend of claim 8 where the weight ratio of HIPS resin to polystyrene homopolymer ranges from about 90/10 to about 50/50.
11. The styrenic resin blend of claim 8 where a product made from the resin blend has improved melt stability as compared with a product made from the relatively low MFI HIPS resin without the relatively high MFI polystyrene homopolymer.
12. A laminated article made with the styrenic resin blend of claim 8.
13. A styrenic resin blend comprising at least one HIPS resin having a MFI ranging from about 1.5 to about 15 and at least one polystyrene homopolymer having a MFI ranging from about 20 to about 40, where the weight ratio of HIPS resin to polystyrene homopolymer ranges from about 90/10 to about 50/50

14. The styrenic resin blend of claim 13 where a product made from the resin blend has improved melt stability as compared with a product made from the relatively low MFI HIPS resin without the relatively high MFI polystyrene homopolymer.
15. A laminated article made with the styrenic resin blend of claim 13.
16. A product made by the process comprising:  
melt blending together to give a melt blend:  
at least one relatively low MFI HIPS resin; and  
at least one relatively high MFI polystyrene homopolymer; and  
extruding the product from the melt blend.
17. The product of claim 16 where the HIPS resin has a MFI ranging from about 1.5 to about 15, and the polystyrene homopolymer has a MFI ranging from about 20 to about 40.
18. The product of claim 16 where the weight ratio of HIPS resin to polystyrene homopolymer ranges from about 90/10 to about 50/50.
19. The product of claim 16 where the product has improved melt stability as compared with a product made from the relatively low MFI HIPS resin without the relatively high MFI polystyrene homopolymer.
20. The product of claim 16 where the product is extruded at a shear rate from about 1,000 to about 15,000 s<sup>-1</sup>.
21. A product made by a process comprising:  
melt blending together to give a melt blend:

at least one HIPS resin having a MFI ranging from about 1.5 to about 15; and

at least polystyrene homopolymer having a MFI ranging from about 20 to about 40;

where the weight ratio of HIPS resin to polystyrene homopolymer ranges from about 90/10 to about 50/50 and

extruding the product from the melt blend.

22. The product of claim 21 where the product has improved melt stability as compared with a product made from the relatively low MFI HIPS resin without the relatively high MFI polystyrene homopolymer.

23. A method of measuring the melt instability of an extruded polymer sample according to the Equation 1:

$$\kappa_{sample} = \frac{UPL_{sample} - LPL_{sample}}{UPL_{control} - LPL_{control}} \quad (\text{Equation 1})$$

where  $UPL_{control}$  is the Upper Prediction Limit of a control polymer having high melt instability extrapolated to a drawing speed equal to zero,  
 $LPL_{control}$  is the Lower Prediction Limit of the control polymer extrapolated to a drawing speed equal to zero,  
 $UPL_{sample}$  is the Upper Prediction Limit of the extruded polymer sample extrapolated to a drawing speed equal to zero, and  
 $LPL_{sample}$  is the Lower Prediction Limit of the extruded polymer sample extrapolated to a drawing speed equal to zero,

where  $\kappa_{sample}$  closer to 1 indicates a relatively unstable extruded polymer sample and a  $\kappa_{sample}$  closer to 0 indicates a relatively stable extruded polymer sample.

24. The method of claim 23 where the control polymer and the sample polymer are selected from the group consisting of styrene polymers and styrene copolymers.